

REMARKS

Reconsideration and withdrawal of the objections and rejection set forth in the above-mentioned Office Action in view of the foregoing amendments and the following remarks are respectfully requested.

Claims 1-4 and 6-8 remain pending in this application. Claims 1 and 8 are independent and have been amended herein.

The title has been amended as requested by the Examiner. Favorable consideration is requested.

The drawings were objected to allegedly because the feature of control and calculation of read addresses in accordance with the number of concurrently drivable printing elements and the number of printing elements is not shown in the drawings. Applicants respectfully disagree, and submit that the claimed features are supported by the drawings, including the schematic structure in Figure 2 and the example of read processing from the buffer memory in Figure 10, as discussed below.

With the claimed arrangement and method, a buffer memory for a printhead can be flexibly utilized among plural types of printheads. This is because the read address for the buffer memory can be calculated in accordance with a number of concurrently drivable printing elements in distributed driving of the selected printhead, an interval of adjacent printing elements of the concurrently drivable printing elements of the selected printhead, a number of a plurality of printing elements of the selected printhead, and a counted number of reading operations for reading out the printing data from the buffer memory.

As an example that is no way intended to limit the scope of the claims, refer to Applicants' specification at page 24, lines 11-20. In that case, the number of printing elements or nozzles in a printhead is 24, the number of concurrently drivable printing elements is 3, in the

interval of adjacent printing elements of the concurrently drivable printing elements is 8 (between nozzles 1, 9 and 17). In this case, every eighth nozzle is concurrently driven and a buffer memory is accessed at every eighth address. Initially, printing data is read out from addresses 0, 8, and 16 of the buffer memory and upon completion of the reading operation, the counter counts up the value by 1. Then printing data is read out from addresses 1, 9 and 17 (corresponding to nozzles 2, 10 and 18). The counter value is again increased by 1 and becomes 2. The reading operations are repeated until reading data from addresses 7, 15 and 23 is completed. At that time, the counter value becomes 8.

Referring to Figure 10, the number of the plurality of the printing elements in this example corresponds to addresses 0-23 and equals 24, the number of concurrently drivable printing elements corresponds to the number of broken-line rectangular areas in a single column and equals 3, an interval of adjacent printing elements of the concurrently drivable printing elements corresponds to the interval between addresses 0 and 8 or 8 and 16 and equals 8. The invention is not limited to this example, and can include other examples, such as a printhead in which 5 nozzles are concurrently driven, as discussed at page 24, lines 23-25. Thus, the present invention can be usable with various types of printheads.

Accordingly, Applicants submit that the claimed features in question are shown in the original drawings, when taken as a whole. Reconsideration and withdrawal of the objection to the drawings are respectfully requested.

Claims 1- 4, and 6-8 were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,341,843 (Takemura et al.) in view of U.S. Patent No. 6,009,245 (Kato et al.). This rejection is respectfully traversed.

The inkjet printhead in Takemura et al. includes a printer buffer 139 and a printhead. The printhead can store printhead identification information in an EEPROM. At most, Takemura

et al. describes that the number of concurrently drivable printing elements is a predefined fixed value. That is, the printhead driving control is based on a fixed number of concurrently drivable printing elements. There is no disclosure or suggestion regarding a number of concurrently drivable printing elements in distributed driving and the interval of adjacent printing elements of the concurrently drivable printing elements. The inkjet printer in Takemura et al. cannot accept various types of printheads that differ from each other at least in view of the number of printing elements, the number of concurrently drivable printing elements, and the interval of adjacent printing elements of the concurrently drivable printing elements.

Accordingly, Takemura et al. fails to disclose or suggest at least storing information on a number of concurrently drivable printing elements according to distributed driving for each of various types of printheads, an interval of adjacent printing elements of concurrently drivable printing elements of each of the various types of printheads, and a number of a plurality of printing elements of each of the various types of printheads, as is recited in independent Claims 1 and 8. Nor does Takemura et al. disclose or suggest calculating a read address in accordance with the number of concurrently drivable printing elements in the distributed driving of a selected printhead, the interval of adjacent printing elements of the concurrently drivable printing elements of the selected printhead, the number of the plurality of printing elements of the selected printhead in reading out the printing data stored in the buffer memory, and a number of counted reading operations, as is recited in independent Claims 1 and 8.

Thus, Takemura et al. fails to disclose or suggest important features of the present invention recited in the independent claims.

The serial printer of Kato et al. can store print data into a buffer based on the number of nozzle arrays and the number of nozzles. However, Kato et al. is also not directed to the use of various types of printheads, with each being driven according to a number of printing

elements, a number of concurrently drivable printing elements, and the interval of adjacent printing elements of the concurrently drivable printing elements. Kato et al., therefore, cannot remedy the deficiencies of of Takemura et al. noted above with respect to the independent claims.

Thus, Claims 1 and 8 are patentable over the citations of record. Reconsideration and withdrawal of the § 103 rejection are respectfully requested.

For the foregoing reasons, Applicants respectfully submit that the present invention is patentably defined by independent Claims 1 and 8. Dependent Claims 2-4, 6 and 7 are also allowable, in their own right, for defining features of the present invention in addition to those recited in independent Claim 1. Individual consideration of the dependent claims is requested.

Applicants submit that the present application is in condition for allowance. Favorable reconsideration, withdrawal of the objections and rejection set forth in the above-noted Office Action, and an early Notice of Allowability are requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

/Mark A. Williamson/

Mark A. Williamson
Attorney for Applicants
Registration No. 33,628

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
MAW:ylr